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EXAMINER	
GISHNOCK, NIKOLAI A	
ART UNIT	**PAPER NUMBER**
3714	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/687,136	ISON ET AL.
	Examiner	**Art Unit**
	Nikolai A. Gishnock	3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on 05 December 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 4-14 and 19 is/are pending in the application.

4a) Of the above claim(s) 1-3,15-18 and 20 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 4-14 and 19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 17 October 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In response to the Applicant's amendments filed 12/5/2007, claims 1-20 are pending. Claims 1-3, 15-18, & 20 are withdrawn from consideration.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 4-6 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrenk et al. (US 4,091,550), hereinafter known as Schrenk, in view of Kalley (US 7,129,706 B2), hereinafter known as Kalley.

5. Schrenk teaches a system for providing operation, diagnostic, procedure or maintenance training, comprising: a mechanical mock-up of at least a part of a system on which the training is required (simulated piece of electronic equipment, 3:42-53), the mechanical mock-up having a plurality of probe points (test points T1-T12, T14-T17, T18, T19-25, T27 & 28, 3:54-65), each one of said probe points being respectively connected to one of said electronically readable

memories that respectively store a unique identifier code ({simulator} data processor has designated memory locations, having logical array tables, which comprise probe detection means for storing a different {unique} digital test point condition signals, representing a simulated voltage condition, at each one of the test points, 5:3-13); a host computer comprising means for communicating with a simulation server (student scope display and keyboard input, connected through other parts of the system through a cable, 6:L3-9), and means for associating each unique identifier code with a corresponding probe event (array tables V and R comprise test storage means for storing test point digital signals representing a simulated voltage or resistance condition, respectively, at each of the test points, 5:13-18), passing a probe point event to the simulation server (data processor communicates with receiver and VOM {Volt-Ohm Meter} through a hybrid computer link, 5:28-45), and determining a response of the simulation server to the probe event (By monitoring all test points, the computer "knows" which point is touched; VOM needle is deflected according to the setting of the VOM control knob, the test point touched, and the test point condition data stored in array tables V and R, 6:37-41); and simulated diagnostic equipment having at least one probe that can be maneuvered to contact any one of the probe points ({VOM} detector probe that is adapted to comate with the test points in the receiver, and is sufficiently large enough to be handled manually by a student using the system, 4:62-66), means for reading the unique identifier code when one of the probe points is contacted by the probe (data processor communicates with receiver and VOM through hybrid computer link, 5:28-6:2), means for communicating with the host computer in order to pass each unique identifier code to the host computer and to receive feedback from the host computer (link comprises an A-D converter which receives data over conductors and transmits corresponding digital data over conductors to memory locations, 5:49-54), and means for processing the feedback to determine a display value to be displayed (Link

also includes a D-A converter which receives digital data from memory and transmits a corresponding tester indicating signal over conductor to VOM, 5:63-66) [Claim 4]. Schrenk also teaches an article comprising: an electronically readable memory (data processor including memory comprising logical arrays, 5:3-21) connected to a mechanical mock-up of a system or a machine (data processor communicates with receiver and VOM through a hybrid link, 5:28-45), for emitting a computer readable modulated electrical signal upon electrical contact with a probe of a simulated diagnostic tool (VOM probe has a low voltage on tip which completes a circuit when it touches a test point, 6:35-41); the signal comprising a unique identifier code (logical arrays comprise probe detection means for storing a different digital test point identification signal for each test point touched by probe, 5:9-12) to determine a probe event that indicates electrical contact between the probe and a probe point on the mechanical mock-up (By monitoring all test points, the computer "knows" which point is touched, 6:37-41) [Claim 19]. What Schrenk fails to teach is wherein the electronically readable memories are located on the piece of electronic equipment to be tested, forming part of it, explicitly transmitting the unique identifier code through the probe upon electrical contact, where the probe event is indicative of a commencement and termination of the electrical contact [Claims 4 & 19]. However, Kalley teaches a part tester, which is adapted to electronically read unique identifying information affixed to a part (1:66-2:29). In the primary embodiment, Kalley teaches a battery tester with a probe for reading a barcode affixed to a battery part being tested (see also Figure 3, Items 40 & 60). Note that Kalley also teaches an embodiment where the identifying information is coded into an electromagnetic signal, including an electrical signal, from a chip associated with the battery {part}. Kalley also teaches requiring the device to read the unique identifying information only when the cable is attached to the battery (2:44-48), thus Kelley teaches an event indicative of a commencement of the electrical contact. It would be obvious to one of ordinary skill in the

art to affix Kalley's chip, associated with a part to be tested, to the simulated testable electronic part of Schrenk, and to transmit a *unique identifier code* as an electronic signal from a memory to the simulated tester, as in Schrenk, where the memory is located in the tested part, and is communicated to the tester by a probe, and where the event signals the commencement {and conversely, a termination} of an electrical contact, as connections are commonly both made and broken, as taught by Kalley. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have the electronically readable memory containing unique indentifying information about a test point on a mechanical mock-up to be tested, as taught by Schrenk, located on and forming part of the mechanical mock-up, to be read by a probe, and identifying the commencement of an electrical contact, as taught by Kalley, in order to prevent fraud or cheating by students using the simulator, because the simulated part itself would contain the encoded correct answer to the instruction requiring the student to use the tester, rather than solely in the simulator [Claims 4 & 19].

6. Schrenk teaches wherein each of the electronically readable memories respectively comprise a microelectronic circuit that is activated to output the unique identifier code when the probe contacts one of the probe points to which the microelectronic circuit is connected (data processor, with memory comprising probe detection means; data processor is disclosed to be a microcomputer, which is inherently a microelectronic circuit, 5:3-21) [Claim 5].

7. Schrenk teaches wherein the probe activates the microelectronic circuit when it contacts the probe point by supplying an electrical current through the connection to the microelectronic circuit (VOM probe has a low voltage on it, which completes a {microelectronic} circuit when it touches a test point, the computer "knows" which point is touched, 6:35-41) [Claim 6].

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schrenk, in view of Kalley, as applied to claims 4-6 above, and further in view of Krauss et al. (US 2002/0191363 A1), hereinafter known as Krauss.

9. Schrenk and Kalley teach all the features as demonstrated above in the rejection of claims 4-6. What Schrenk and Kalley fail to teach is wherein the electronically readable memory comprises a touch memory button [Claim 7]. However, Maxim/Dallas Semiconductor Corp.'s iButtons are old and well-known in the art. Krauss teaches an electrical device using an information memory embodied as a memory button for transferring characteristic data pertaining to the device (Abstract, Para. 0028 & 0028; also, Figure 1, Item 12). The electronically readable memory used in the invention of Schrenk would be implemented as a memory button, which could be attached to the mechanical mock-up, as taught by Kalley. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have implemented the electronically readable memory of Schrenk, in light of the teachings of Kalley, as a memory button, as further taught by Krauss, in order to simplify the storage of parameters such as the V and R test point condition data [Claim 7].

10. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrenk, in view of Kalley, as applied to claim 4 above, and further in view of Fordham et al. (US 5,067,901), hereinafter known as Fordham.

11. Schrenk and Kalley teach all the features as demonstrated above in the rejections of claim 4. Schrenk teaches a simulated Volt-Ohm Meter (VOM, 4:35-45) having two conductors; a conductor to a detector probe (4:62-66), and a conductor to ground (4:44-45). What Schrenk and Kalley fail to explicitly teach is wherein the simulated diagnostic tool comprises an electronic multimeter having two probes [Claim 8]. However, Fordham teaches an apparatus for

simulating a multimode meter (multimeter) having a pair of test leads (Abstract, 1:58-61, 2:52-53; also, Figure 4, Items 16a & 16b). The conductor of Schrenk connected to ground would be connected to a probe, rather than permanently connected to ground. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have incorporated a pair of probes, as taught by Fordham, into the Volt-Ohm Meter of Schrenk, in light of the teachings of Kalley, in order to allow a student to probe other connections on a simulated system, based on a selected refernce voltage other than ground [Claim 8].

12. Schrenk teaches wherein the simulated diagnostic tool comprises a simulated multimeter (VOM, 4:35-45) with a mode selector input (scale selector knob, 4:46-61), and a communications processor for communicating with the host computer (converter receives digital data from memory locations and transmits a corresponding tester indicating signal to VOM, 5:63-66) [Claim 9]. Schrenk teaches the use of A-D and D-A converters for translating the digital data of the simulation for display on an analog VOM (5:46-66). What Schrenk and Kalley fail to teach is where the multimeter is digital [Claim 9]. However, Fordham teaches the use of a simulated digital multimeter, displaying digital display signals (Abstract, and 1:44-56). The analog VOM of Schrenk would be substituted for a digital multimeter. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have substituted the VOM of Schrenk, in light of the teachings of Kalley, with a digital multimeter, as taught by Fordham, in order to simply the link between the digital simulator and the VOM, and also to teach a student to read a digital multimeter rather than an analog VOM [Claim 9].

13. Schrenk teaches wherein the means for communicating with the host computer comprises means for communicating the mode selection input to the host computer to determine a set of simulation parameters maintained by the simulation server that are to be associated with the display value (scale selector knob {is} operated by the student to identify the

desired sensitivity of the tester on the volts AC, volts DC, and resistance scales, 4:46-61; the sensitivities of the scales are inherently selection parameters; the display value is a conventional meter movement on the VOM that operates a deflection needle, behind which are various scales inscribed on the face of the meter, 4:35-42, of which the scale selector knob selects between; also, input 125 provides a means of sensing the state or position of the VOM control switch, 5:41-43; this input is communicated to the data processor through the hybrid link, 5:28-31; also, 6:61-66) [Claim 10].

14. Schrenk teaches an instructor station that may be used to control the simulation server to simulate system faults (the training system also comprises an instructor scope display unit, 6:10-24, also Figure 6, Item 210; the instructor unit is shown to have a two-way connection {at Figure 6, Item 212} to the data processor, Figure 6, Item 180; therefore, the instructor unit inherently communicates with the data processor's control unit, Figure 6, Item 183; also the test point device can simulate both normal equipment operation and operation when certain components have failed, 2:18-26; the system is programmed to simulate DC voltage and resistance-to-chassis-ground measurements for normal and abnormal operation due to one type of failure, 6:44-47) [Claim 11].

15. Schrenk teaches wherein the instructor station further permits an instructor to monitor a training exercise (the training system also comprises an instructor scope display unit {and a} data processor, 6:10-24; the function of the software system is to: Drive and monitor the VOM), guide a trainee through a training exercise (display text material explaining the operation of VOM and receiver, and provide a simple structure for student question/answer dialog, 6:10-24), create a simulation program (software routines and functions for coding instructional modules, 6:67-8:58; also, SETUP routine for altering the instructions {provided} to the student, 8:63-68), and to select preprogrammed system faults the invention can simulate both normal equipment

operation and operation while certain components of the equipment have failed, 2:20-23; the word "certain" implies that the system faults are predetermined) [Claim 12].

16. Schrenk teaches an electronic memory in communications with the host computer for storing student responses to training exercises (during operation, a student proceeds through a series of instructions and questions programmed in the instruction modules, based on his{/her} response, the routines set pointers denoting text to be displayed, instructional paths, repeat paths for errors, etc., 7:25-35; the setting of pointers is inherently storing their new addresses) [Claim 13].

17. Schrenk teaches wherein the host computer further comprises a look-up table for associating the unique identifier code with one of the probe points to identify the probe point event (array tables V and R, 5:8-21; for cross-referencing test point identifications with simulated conditions), and a procedure for communicating the probe point event to the simulation server (data processor communicates with receiver and VOM through a hybrid link, 5:28-31; using the procedure of 6:25-49, etc.) [Claim 14].

Response to Arguments

18. Applicant's arguments with respect to claims 4-6 & 19, filed 12/5/2007, see pages 6-8, have been considered but are not persuasive.

19. In regards to Applicant's arguments concerning the Schrenk reference, the Examiner does not rely upon Schrenk to teach a unique identifier code transmitted through a probe, an information flow from or to a probe upon contact of test points, or using a coded event to indicate a commencement or termination of an electrical contact. These features are taught by Kalley, as demonstrated above. It would have been obvious to one of ordinary skill in the art, at the time of invention, to electrically transmit data to the tester via the probe, rather than basic

voltages, as taught by Kalley, using a simulated parts trainer otherwise taught by Schrenk, in order to prevent a user from cheating or tricking the simulator by introducing a voltage upon the probe that did not come from the simulator. In this way, the unique identifier code of Kalley would verify to the tester that the student simulator was used in the training. In response to applicant's arguments against the Schrenk reference individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

20. In response to applicant's argument that there is no suggestion to combine the Schrenk and Kalley references, the Examiner recognizes that obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Additionally, the Supreme Court has particularly emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," where, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results," *KSR International Co. v. Teleflex Inc. (KSR),* 550 U.S. ___, 82 USPQ2d at 1385 (2007). The focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person would have been reasonably expected to have been able to do in view of that knowledge. This is so regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense. See MPEP 2142 (Rev. 6, Sept. 2007). In the instant case, an

explicit motivation, supported by common sense, is provided to the Applicant in the rejection above.

21. Applicant's further argument that combination with Kalley would render the Schrenk reference inoperable because Schrenk monitors test points and does not rely upon a signal being transmitted from the test point into the probe is also not persuasive, because there is a reasonable expectation of success in combining Schrenk and Kalley. See MPEP 2143.02. In the instant case, Schrenk teaches providing a source of plus 10 volts (a low voltage) on the tip of a probe, which completes a circuit when it touches a test point (6:35-49). Kalley also teaches completing an electrical circuit to measure current (2:65- 3:2). It is deemed reasonable to expect success because completion of a circuit occurs. The entire functionality of Schrenk would *not* be totally altered, because electrical signals, whether they represent coded identifiers (such as binary numbers) or merely provide voltages, are instantiated by completing a circuit. Information does not literally flow out of a wire like water. Data is transmitted by electrical signals because the voltage and/or current patterns *represent encoded information.*

22. Applicant's remarks concerning Kalley's method of "attaching the battery tester to the battery.... Can optionally include attaching an amps probe to a negative battery electrode, because a negative battery electrode does not relate to a probe point on a mechanical mock-up", is an attempt to cloud the rejection issue. Kalley clearly teaches where the tester can receive identifying information from an input device, for example, by connection through a data transfer port of the tester (4:58-62). The input device as taught may also be an electromagnetic signal detector (4:58-5:12). This input device receiving unique, coded data via a data transferring is understood to be a probe. Further, connecting the input device would obviously indicate the commencement of an event, whereas disconnecting the device would conversely signal the termination of a data transfer event, akin to the case where an Ethernet cable, having

been manually disconnected from a computer, would indicate to said computer a termination of communication event. Thus, the Applicant's arguments are not persuasive.

Conclusion

23. The following references are made of record and not used in the above rejections:

- Alling (US 6,679,703 B2) discloses a system for providing virtual training to a student to achieve a certification that he or she desires.
- Kouba et al. (US 6,616,453 B2) discloses a system for remote certification of plant workers at multiple websites.
- Rust et al. (US 6,418,392 B1) discloses a system and method for simulating a virtual instrumentation system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolai A. Gishnock whose telephone number is (571)272-1420. The examiner can normally be reached on M-F 8:30a-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xuan M. Thai can be reached on 571-272-7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. A. G./
Examiner, Art Unit 3714
2/16/2008

/Ronald Laneau/
Supervisory Patent Examiner, Art Unit 3714